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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/617,747

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EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1762

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/617,747

Applicant(s)

OKADA ET AL.

Examiner

Jimmy Lin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-10,13,14 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10,13,14 and 17-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 13-14 are objected to because of the following informalities: every claim should only be a single sentence. Claims 13-14 are broken up into two different sentences, wherein the first sentence in both claims end with “partial vapor pressure of the solvent”. Appropriate correction is required.
2. Claims 1-2, 5-10, and 13-14 are objected to because of the following informalities: the limitation of “discharging liquid droplets at a partial vapor pressure of the solvent” should be changed to “discharging liquid droplets in an atmosphere having a low partial pressure of the solvent vapor” (as suggested in [0034]) in order to clarify the limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 1-2, 5-10, 13-14, and 17-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for using a solvent vapor removal device to forcibly *control* a solvent vapor. Also, there is no support for the general limitation of “a solvent removal device”. The specification only has support for providing a gas blowing means for blowing a gas to the substrate [0013] and blowing nitrogen to the surface of the substrate so that the solvent vapor evaporating from the droplets arranged on the substrate can be removed [0031].

There is no support for removing or controlling the evaporating solvent vapor solely

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through suction (claims 18, 20, 22, and 24). In fact, the specification teaches that the blowing of gas on the substrate and the suction method must be performed simultaneously. For example, “when the removal of the solvent vapor is conducted by blowing gas to the substrate surface inside the sealed space, the removing operation *must* be conducted while the blowout gas is being sucked” [0077] (emphasis added by Examiner).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-2, 5-10, 13-14, and 17-24 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the combination of blowing and suction of gas. As stated above, the specification teaches that the blowing of gas must be accompanied by a suction step.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-2, 17, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki et al. (U.S. Patent 5,951,350).

Aoki teaches a method of making a plasma display panel (abstract). Liquid droplets are discharged from an ink jet head to positions on a substrate while the liquid discharge port is being moved relatively to the substrate (Fig. 9). An air nozzle can be attached to the ink jet head.

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Compressed air is blown onto the discharged liquid droplets to push the liquid droplets onto side walls. The airflow also dries the liquid droplets (col. 10, lines 55-67). The liquid droplets can be blended with a solvent to generate a desired viscosity (col. 7, lines 1-3). Thus, the evaporating solvent vapor is forcibly removed and forcibly controlled prior to completing droplet arrangement on the entire substrate.

9. Claims 1-2, 5-6, 17, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawase (WO 01/70506).

Kawase teaches a method of making an electroluminescent device (paragraph bridging pgs. 3-4). Liquid droplets of organic EL material and a solvent are discharged through an ink jet head to positions on a substrate while the ink jet head is being moved relatively to the substrate (abstract; paragraph 6). Gas is blown across the surface of the substrate during deposition (abstract), thereby forcibly removing and forcibly controlling the evaporating solvent vapor.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 7-10, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawase '506, as applied to claim 5.

Kawase teaches that banks can be deposited onto the substrate in order to define the areas in which the EL materials are to be contained (paragraph bridging pgs. 4-5).

Kawase does not explicitly teach forming first and second electrodes on the EL substrate. However, the Examiner takes Official Notice that an EL display device requires a lower electrode and an upper electrode in order for the EL display device to function. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed first and second electrodes on the substrate of Kawase with a reasonable expectation of

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success. One would have been motivated to do so in order to have manufactured an operable device for its intended function.

12. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawase '506, as applied to claim 9, in view of Miyashita et al. (WO 98/24271; references made are to the English equivalent U.S. Patent 6,863,961).

Kawase does not explicitly teach that a hole transport material can be deposited. However, Miyashita teaches that red and green organic luminescent material can be ink-jet deposited for the red and green pixels, respectively. The blue pixel can be ink-jet deposited with a hole transport material (col. 11, lines 19-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have deposited an organic luminescent material for the red and green pixels and to have deposited a hole transport material for the blue pixel in the EL device of Kawase with a reasonable expectation of success because Miyashita teaches that using such a combination of materials for the EL pixels is operable.

13. Claims 1-2, 5-10, 13-14, 17, 19, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent 6,830,494) in view of Yoshida et al. (U.S. Publication 2001/0016260) and Forrest et al. (U.S. Patent 6,030,700).

Yamazaki discloses a method of making an organic EL device, the method comprising:
forming first electrodes 112;
forming banks 105 (Fig. 1C);
forming a second electrode 48 (Fig. 5);
discharging liquid droplets containing organic EL material and a solvent from an ink-jet printer to a substrate over the first electrodes (col. 10, lines 62-64; Fig. 1C);
removing and controlling (i.e., in a controlled environment such as in a baking chamber) a solvent vapor evaporating from a droplet arranged previously on the substrate (col. 12, lines 26-31).

Yamazaki does not explicitly teach forcibly removing or forcibly controlling a solvent vapor evaporating from a droplet using a solvent vapor removal device prior to completing droplet arrangement on the entire substrate. However, Yamazaki does teach a drying process in

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order to remove solvent from the EL layer after deposition (col. 12, lines 26-29). The Examiner takes Official Notice that one of ordinary skill would readily recognize that depositing a material and simultaneously drying the material will increase the rate of production, thereby reducing production costs (see, e.g., Yoshida, [0006]). Yamazaki teaches that the drying process is performed under a heat treatment. However, Forrest teaches that blowing nitrogen at the substrate can remove solvent. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have simultaneously deposited the EL material of Yamazaki and dried the EL material by blowing nitrogen at the surface of the substrate because simultaneous deposition and drying can reduce production costs and because Forrest teaches that such a drying process using nitrogen is suitable for removing solvent. Thus, the solvent vapor evaporating is forcibly removed and controlled with the nitrogen gas blowing at the substrate.

Claims 13-14: Yamazaki teaches that the EL layer can comprise of a hole injection-transportation layer (col. 10, line 62-col. 11, line 3).

Response to Arguments

14. Applicant's arguments with respect to claims 1-2, 4-10, and 13-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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KEITH HENDRICKS
PRIMARY EXAMINER